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this consummation long desired at sea, and they took kindly to the instrument, though it was an innovation on nautical practice.

" In order to perfect the balance of some parts of the machine, which had left its maker's shop rather unfinished, I kept the sailors for several days working the driving-wheels while I was experimenting; they laboured at them with enthusiasm, indeed, rather too much so, for one unfortunate evening, when the instrument was so nearly perfect that I hoped in the course of the night to essay the grand nautical problem of observing an eclipse of one of *Jupiter's* satellites, the sailors, impatient of the difficulty of getting up immediately the full speed, clapped on a rope to the handle of the driving-wheel, and pulled away in such style, that they twisted the strong steel driving-axle in two, and were themselves laid flat along the deck.

" The practical sufficiency, however, of the single-wheel revolver stand, for correcting the rolling and pitching of a ship at sea, had been abundantly proved. And more than this, the azimuthal deviations of the yacht, which had been previously neglected as comparatively trifling, so long as rolling and pitching existed, were now found, when these were eliminated, and yawings left as the sole residual, to be absolutely so large, and so annoying to telescopic vision, as imperatively to demand attention and correction by the same revolver method also. On looking into the telescope, for instance, on the above-described stand, no change of plane from the horizon of the sea could be discovered; but any point in that plane, as a distant ship, was oscillating backwards and forwards in the horizontal direction twenty times in a minute; this being the effect of the azimuthal changes of the position of the yacht not having been eliminated as had been the rolling and the pitching.

" The application of a second revolver to the apparatus which was employed on board, to enable it to eliminate all the angular disturbances of the yacht would be easy, as indeed I described in my paper of last year, and such an addition should be a necessary preliminary to any further trials at sea."

Dr. William Stroud, in two letters to Dr. Lee, draws attention to two lunar eclipses which he imagines to be important as helping " to dispel some doubts and difficulties which still beset the chronology of the Christian era." The first of these he supposes to have happened at the autumnal equinox of the year B.C. 5, and the latter in the year A.D. 30, at the Paschal full moon corresponding to the time of the Crucifixion of our Saviour.

With regard to the first of these, it appears that there were two lunar eclipses in each of the years B.C. 4 and B.C. 5, one at the vernal and the other at the autumnal equinox; and they are

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therefore of little use in fixing, in connexion with the well-known passage of Josephus, the date of Herod's last illness.

With regard to the eclipse of A.D. 30, its connexion with the date of the Crucifixion appears to rest only on the figurative expressions quoted by St. Peter from the prophet Joel: "The sun shall be turned into darkness and the moon into blood before . . ." As the purely astronomical portion of such speculations may rightly be considered to fall within the province of this Society, perhaps some Fellow possessing the leisure and requisite means, will oblige Dr. Stroud by undertaking an accurate computation of the eclipses in the above-mentioned years, with the data of the best modern tables.

Abstract of a Memoir in Vol. IX., Part IV. of the Cambridge Philosophical Society's Transactions, entitled, 'On the External Temperature of the Earth, and the other Planets of the Solar System.' By W. Hopkins, Esq. F.R.S. and V.P. C.P.S.

The author of this paper states in the outset that he was led into the researches therein contained in consequence of the interest excited by recent speculations involving the conditions of existence of organised beings,—conditions comprising heat, light, moisture, &c., of which he proposes to examine the one of temperature. He remarks that we have not the means of determining the actual superficial temperature of any planet besides our own, but that we know it must mainly depend (1) on the temperature of planetary space, (2) on the direct heat which the nearer planets receive from the Sun, and (3) from the modifications which result from their atmospheres, the positions of their axes of rotation, and the conductivity and specific heat of the substances forming their outer crusts,—modifications which may have a far greater influence than has been generally supposed.

He commences by general remarks and illustrations on the various modes by which heat may be transmitted, by complete or partial radiation, by conduction, or by convection, applying them, in the first place, to the Earth, and considering separately the mean temperature and the annual and diurnal variations.

"It is almost entirely by direct radiation that the solar heat reaches the Earth's surface, when the atmosphere is pure. . . . In the transference of the heat back again, all the other modes of transmission must be more or less effective, though we are altogether ignorant of their relative degrees of efficiency. It is, however, sufficient for us to know that none of them can be effective unless the temperature of the atmosphere decrease continually as we ascend from its lower to its upper regions . . . . . It will be my object to examine the data we possess for determining numerically what would be the effect of an *increase* or *diminution* of our atmosphere on terrestrial temperature, and also what is the actual effect